WHAT IS CLAIMED IS:

1. A method of controlling a loop-back process between a local device and a remote device in an Ethernet passive optical network, the method comprising the steps of:

(a) providing a predetermined field in a loop-back control OAM PDU, the predetermined field having distinguishing messages for an initiation of the loop-back process and a termination of the loop-back process; and

(b) the local device and the remote device performing a loop-back process using the loop-back control OAM PDU.

2. The method loop-back as claimed in claim 1, wherein the predetermined field comprises:

a first field value representing a message requesting an initiation of a loop-back process;

a second field value representing a message acknowledging the initiation request message of the loop-back process;

a third field value representing a message requesting a termination of the loop-back process from the local device to the remote device;

a fourth field value representing a message a message requesting a termination of the loop-back process from the remote device to the local device; and

a fifth field value representing a message acknowledging the fourth field value from the local device to the remote device.

3. The method loop-back as claimed in claim 1, wherein step (b) comprises a loop-back process initiation step and a loop-back process termination step,

wherein the loop-back process initiation step includes the steps of:

(1) transmitting, by the local device, a loop-back control OAM PDU requesting an initiation of the loop-back process to the remote device, and

(2) transmitting, by the remote device, a loop-back control OAM PDU acknowledging the initiation of the loop-back process to the local device; and

wherein the loop-back process termination step includes the step of transmitting, by the local device, a loop-back control OAM PDU requesting a termination of the loop-back process to the remote device, so that the loop-back process can be terminated.

4. The method loop-back as claimed in claim 1, wherein step (b) comprises a loop-back process initiation step and a loop-back process termination step,

wherein the loop-back process initiation step includes the steps of:

(1) transmitting, by the local device, a loop-back control OAM PDU requesting an initiation of the loop-back process to the remote device; and

(2) transmitting, by the remote device, a loop-back control OAM PDU acknowledging the initiation of the loop-back process to the local device, and

wherein the loop-back process termination step includes the steps of:

(3) transmitting, by the remote device, a loop-back control OAM PDU requesting a termination of the loop-back process to the local device; and

(4) transmitting, by the local device, a loop-back control OAM PDU

acknowledging the termination of the loop-back process to the remote device.

5. The method loop-back as claimed in claim 1, wherein step (b) comprises a loop-back process initiation step and a loop-back process termination step,

wherein the loop-back process initiation step includes the steps of:

(1) transmitting, by the local device, a loop-back control OAM PDU requesting an initiation of the loop-back process to the remote device; and

(2) transmitting, by the remote device, a loop-back control OAM PDU acknowledging the initiation of the loop-back process to the local device, and

wherein the loop-back process termination step includes the steps of:

(3) sensing, by the remote device, a termination of a predetermined time of the loop-back process;

(4) transmitting, by the remote device, a loop-back control OAM PDU requesting a termination of the loop-back process to the local device; and

(5) transmitting, by the local device, a loop-back control OAM PDU acknowledging the termination of the loop-back process to the remote device.